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A PORPOISE, *AUSTRALOPHOCAENA DIOPTRICA*,
PREVIOUSLY IDENTIFIED AS *PHOCOENA SPINIPINNIS*,
FROM HEARD ISLAND

Guiler, Burton and Gales (1987) reported a cranium (Tasmanian Museum No. A1411) they identified as belonging to Burmeister's porpoise, *Phocoena spinipinnis* Burmeister, 1865 from Heard Island (53°S 73°30'E). They noted that *P. spinipinnis* was previously known only from the cold-temperate coastal waters of South America and claimed that this cranium was evidence that the species has a much wider distribution than previously known. We have examined the photographs and details of their specimen and re-identify it here as *Australophocaena dioptrica* (Lahille, 1912) (family Phocoenidae).

Barnes (1985) listed several features that distinguish the skulls of species within the subfamily Phocoenoidinae (including *A. dioptrica*) from those species within the Phocoeninae (including *Phocoena* spp.). Features that distinguish *A. dioptrica* from *P. spinipinnis*, clearly visible in the published photographs of the cranium from Heard Island, include: a relatively small, oval-shaped temporal fossa; an elevated, high-vaulted braincase that slopes abruptly onto the narial region; relatively large, high and convex premaxillary bosses; dorso-ventrally expanded zygomatic process of the squamosal; short and anteroposteriorly expanded postorbital process of the frontals; and maxillae extending nearly to the dorsal margin of the supraoccipital on the top of the skull. In all these features, the Heard Island specimen conforms with those of *A. dioptrica*. Crania of *A. dioptrica* have been illustrated by Hamilton (1941), Norris and McFarland (1958), Brownell (1975), Fordyce *et al.* (1984), and Barnes (1985). Crania of *P. spinipinnis* have been illustrated by Norris and McFarland (1958) and Brownell and Praderi (1984).

While *Phocoena spinipinnis* and *Australophocaena dioptrica* overlap in adult skull length, the Heard Island specimen is larger than any known specimen of *P. spinipinnis*. The condylobasal length (CBL) of this cranium is 303 mm; CBL in 10 specimens of *P. spinipinnis* examined by Brownell and Praderi (1984) was 224 to 290 mm. The same measurement for 46 adult skulls of *A. dioptrica* ranged from 279 to 324 mm (unpublished data, WFP).

Guiler *et al.* (1987) based their identification of the newly discovered specimen

on a comparison of the photographs of phocoenid skulls presented by Norris and McFarland (1958). They noted that although the cranium from Heard Island was larger than the specimen of *P. spinipinnis* shown by Norris and McFarland (1958), "the ratio of rostral width : rostral length (0.513) is similar to that found by those two authors (0.517) as is the ratio of skull length : skull width (0.55 compared to 0.560). These ratios are different from those found for *P. sinus* (0.630 and 0.637 respectively) and for *P. phocaena* [sic] (0.470 and 0.537). The rostral proportions for *A. dioptrica* are 0.737."

The ratio of the width to length of the rostrum of the cranium from Heard Island is given by Guiler *et al.* (1987) as 0.513, but, based on the measurements given in their table 1, it is actually 0.506 (82 divided by 162). Moreover, the rostral length of the Heard Island specimen (162 mm) given in this table must be incorrect. If the zygomatic width and the maximum width are both 169 mm, then it can be seen in figure 2 of Guiler *et al.* (1987) that the rostral length is only about 75% of the maximum width, or approximately 127 mm. This new value for the rostral length of the cranium would give a width to length ratio of 0.646. This ratio would be greater if the rostral length were less. To obtain a rostral length as great as 162 mm, the measurement would necessarily have been made from the tip of the rostrum to the external nares; and we believe that the rostral length measurement must have been made in this way. The correct ratio of approximately 0.646, therefore, is closer to that of *A. dioptrica* than *P. spinipinnis*.

The ratio of skull width to the total length of the cranium is 0.558 (not 0.550 as given by Guiler *et al.*). The same ratio in the specimens reported by Norris and McFarland (1958) for *P. spinipinnis* is 0.615 (168 divided by 273) and 0.583 for *A. dioptrica*. Again the ratio of the specimen from Heard Island is closer to that of *A. dioptrica* than to that of *P. spinipinnis*.

We are not able to comment on the rostral alveolar count (14 left and 13 right) given for the Heard Island specimen, except to say that a few extra teeth in each tooth row would yield a number corresponding to the lower end of the range for *A. dioptrica* (16–25 in ten specimens recently examined by WFP). The posterior-most teeth in this species are in a shallow alveolar groove and are easily lost and their numbers very difficult to determine from dry specimens.

Specimens of *A. dioptrica* have been previously reported from Uruguay, Argentina, southern Chile, the Falkland Islands (Malvinas), South Georgia, the Auckland Islands and Macquarie Island (Brownell 1974, Baker 1977, Goodall and Cameron 1979, Fordyce *et al.* 1984). At-sea sightings of the species are known from around New Zealand and Kerguelen Islands (Frost and Best 1976, Fordyce *et al.* 1984). Thus, the specimen reported by Guiler *et al.* (1987), which we identify as *A. dioptrica*, extends the known distribution of the species, which is in the cool-temperate waters of the southern ocean in subarctic latitudes. It will be interesting if future records fill in this scattered distribution record.

Phocoena spinipinnis remains a species of southern South America (coastal waters of southern Brazil—Pinedo, in press; Uruguay, Argentina, Chile and Peru—Brownell and Praderi 1984). The species is not even known from the Falkland Islands, where two other dolphins inhabiting the South American

mainland coastal waters (*Cephalorhynchus commersonii* and *Lagenorhynchus australis*) are known (Brownell 1974).

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